WHAT IS CLAIMED IS:

1. A method for allowing a plurality of main cards within a rack mount system to communicate with each other, comprising:

transferring a first set of information from a first one of the plurality of main cards to a first switch card using a first one of a plurality of differential copper pairs; and

routing the first set of information, using the first switch card, to a second one of the plurality of main cards as specified by a messaging protocol destination address using a second one of the plurality of differential copper pairs.

2. The method of claim 1, wherein the first set of information complies with an Ethernet protocol that includes the messaging protocol destination address.

3. The method of claim 1, wherein the rack mount system complies with a CompactPCI Specification and the first switch card links to the plurality of differential copper pairs using a J3 connector.

4. The method of claim 1, further comprising:

transferring a second set of information from the first one of the plurality of main cards to a second switch card using a third one of the plurality of differential copper pairs;

routing the second set of information, using the second switch card, to the second one of the plurality of main cards as specified by the messaging protocol destination address using a fourth one of the plurality of differential copper pairs; and

selecting, using the second one of the plurality of main cards, at least one of the first set of information and the second set of information.

5. The method of claim 4, wherein the second set of information is a duplicate of the first set of information.

6. The method of claim 4, wherein the second one of the plurality of main cards selects for use the first to arrive between the first set of information and the second set of information.

7. The method of claim 4, wherein the second one of the plurality of main cards discards the set of information that is first-to-arrive and uses the set of information that is later-to-arrive if the set of information that is first-to-arrive has an error.

8. The method of claim 4, wherein the rack mount system complies with a CompactPCI Specification and each of the plurality of main cards, the first switch card, and the second switch card have a J3 connector, and the plurality of main cards, the first switch card, and the second switch card link to the plurality of differential copper pairs using the J3 connector.

9. The method of claim 4, wherein the first set of information and the second set of information comply with a Ethernet protocol that includes the messaging protocol destination address.

10. The method of claim 4 wherein the plurality of differential copper pairs are integrated within a mid-plane of the rack mount system.

11. The method of claim 4 wherein the plurality of differential copper pairs are on external cables that interconnect the plurality of main cards and at least one of the first switch card and the second switch card.

12. A system for allowing a plurality of main cards within a rack mount system to communicate with each other, comprising:

a first one of the plurality of main cards to transfer a first set of information to a first switch card using a first one of a plurality of differential copper pairs; and

the first switch card, also within the rack mount system, to route the first set of information to a second one of the plurality of main cards as specified by a messaging protocol destination address using a second one of the plurality of differential copper pairs.

13. The system of claim 12, wherein the first set of information complies with a Ethernet protocol that includes the messaging protocol destination address.

14. The system of claim 12, wherein the rack mount system complies with a CompactPCI Specification and the first switch card links to the plurality of differential copper pairs using a J3 connector.

15. The system of claim 12, wherein

the first one of the plurality of main cards transfers a second set of information to a second switch card using a third one of the plurality of differential copper pairs;

the second switch card routes the second set of information to the second one of the plurality of main cards as specified by the messaging protocol destination address; and

the second one of the plurality of main cards selects at least one of the first set of information and the second set of information.

16. The system of claim 15, wherein the second set of information is a duplicate of the first set of information.

17. The system of claim 15, wherein the second one of the plurality of main cards selects for use the first to arrive between the first set of information and the second set of information.

18. The system of claim 15, wherein the second one of the plurality of main cards discards the set of information that is first-to-arrive and uses the set of information that is later-to-arrive if the set of information that is first-to-arrive has an error.

19. The system of claim 15, wherein the rack mount system complies with a CompactPCI Specification and each of the plurality of main cards, the first switch card, and the second switch card have a J3 connector, and the plurality of main cards, the first switch card, and the second switch card link to the plurality of differential copper pairs using the J3 connector.

20. The system of claim 15, wherein the first set of information and the second set of information comply with a Ethernet protocol that includes the messaging protocol destination address.

21. The system of claim 15 wherein the plurality of differential copper pairs are integrated within a mid-plane of the rack mount system.

22. The system of claim 15 wherein the plurality of differential copper pairs are on external cables that interconnect the plurality of main cards and at least one of the first switch card and the second switch card.

23. A system to obtain a fixed impedance in a differential copper pair, comprising:

a first copper conductor;

a second copper conductor that is parallel to the first copper conductor and spaced sufficiently apart from the first copper conductor to obtain the fixed impedance; and

an insulating casing encompassing the first copper conductor and the second copper conductor, comprising:

two side-ground-planes that are sufficiently thick and spaced apart to obtain the fixed impedance;

two vertical-ground-planes that are perpendicularly connected to the two side-ground-planes and are sufficiently thick and spaced apart to obtain the fixed impedance; and

two pairs of vias, each of the two side-ground-planes includes one of the two pairs of vias and each of the vias in the one pair of vias are sufficiently spaced apart to obtain the fixed impedance.

24. The system of claim 23, wherein the two side-ground planes are at least 0.015 inches thick, and an inner surface of a first one of the plurality of side ground planes is 5 millimeters to the left of the first copper conductor and is 10 millimeters to the left of the second copper conductor, and an inner surface of a second one of the plurality of side ground planes is 5 millimeters to the right of the second copper conductor and 10 millimeters to the right of the first copper conductor.

25. The system of claim 23, wherein the two vertical-ground-planes are at least 0.007 inches thick and a first one of the plurality of vertical-ground-planes attaches perpendicularly to a top edge of the first one of the plurality of side-ground-planes and attaches perpendicularly to a top edge of the second one of the plurality of side-ground-planes and the first one of the plurality of vertical-ground-planes is 5 millimeters above the first copper conductor and the second copper conductor.

26. The system of claim 23, wherein a second one of the plurality of vertical-ground-planes attaches perpendicularly to a bottom edge of the first one of the plurality of side-ground-planes and attaches perpendicularly to a bottom edge of the second one of the plurality of side-ground-planes and the second one of the plurality of vertical-ground-planes is 5 millimeters below the first copper conductor and the second copper conductor.

27 The system of claim 23, wherein the vias in each of the two pairs of vias are less than 0.1 inches apart and one of the two pairs of vias reside on the first one of the plurality of side-ground-planes and the other of the two pairs of vias reside on the second one of the plurality of side-ground-planes.

28. The system of claim 27, wherein each of the two pairs of vias is used to connect the two vertical-ground-planes together.

29. The system of claim 23, wherein the first copper conductor is 5 millimeters away from the second copper conductor.